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IRF7726TR

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International
IOR Rectifier

PD -94064

IRF7726

HEXFET® Power MOSFET

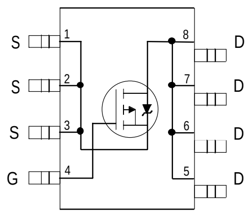
- Ultra Low On-Resistance
- P-Channel MOSFET
- Very Small SOIC Package
- Low Profile (< 1.2mm)
- Available in Tape & Reel

V_{DSS}	$R_{DS(on)}$ max	I_D
-30V	0.026@V_{GS} = -10V	-7.0A
	0.040@V_{GS} = -4.5V	-6.0A

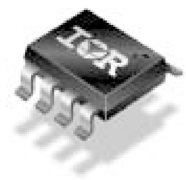
Description

HEXFET® Power MOSFETs from International Rectifier utilize advanced processing techniques to achieve extremely low on-resistance per silicon area. This benefit, combined with the ruggedized device design, that International Rectifier is well known for, provides the designer with an extremely efficient and reliable device for battery and load management.

The new Micro8 package, with half the footprint area of the standard SO-8, provides the smallest footprint available in an SOIC outline. This makes the Micro8 an ideal device for applications where printed circuit board space is at a premium. The low profile (<1.2mm) of the Micro8 will allow it to fit easily into extremely thin application environments such as portable electronics and PCMCIA cards.



Top View


MICRO-8

Absolute Maximum Ratings

	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	-30	V
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ -10V	-7.0	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ -10V	-5.7	
I_{DM}	Pulsed Drain Current①	-28	
P_D @T_A = 25°C	Maximum Power Dissipation③	1.79	W
P_D @T_A = 70°C	Maximum Power Dissipation③	1.14	W
	Linear Derating Factor	0.01	W/°C
V_{GS}	Gate-to-Source Voltage	±20	V
T_J , T_{STG}	Junction and Storage Temperature Range	-55 to +150	°C

Thermal Resistance

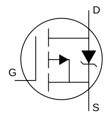
	Parameter	Max.	Units
$R_{\theta JA}$	Maximum Junction-to-Ambient③	70	°C/W

12/21/00

Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	-30	——	——	V	V_{GS} = 0V, I_D = -250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	——	0.016	——	V/°C	Reference to 25°C, I_D = -1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	——	——	0.026	Ω	V_{GS} = -10V, I_D = -7.0A ②
		——	——	0.040		V_{GS} = -4.5V, I_D = -6.0A ②
$V_{GS(th)}$	Gate Threshold Voltage	-1.0	——	-2.5	V	V_{DS} = V_{GS}, I_D = -250µA
g_{fs}	Forward Transconductance	10	——	——	S	V_{DS} = -10V, I_D = -7.0A
I_{DSS}	Drain-to-Source Leakage Current	——	——	-15	µA	V_{DS} = -24V, V_{GS} = 0V
		——	——	-25		V_{DS} = -24V, V_{GS} = 0V, T_J = 70°C
I_{GSS}	Gate-to-Source Forward Leakage	——	——	-100	nA	V_{GS} = -20V
	Gate-to-Source Reverse Leakage	——	——	100		V_{GS} = 20V
Q_g	Total Gate Charge	——	46	69	nC	I_D = -7.0A
Q_{gs}	Gate-to-Source Charge	——	8.0	——		V_{DS} = -15V
Q_{gd}	Gate-to-Drain ("Miller") Charge	——	8.1	——		V_{GS} = -10V
$t_{d(on)}$	Turn-On Delay Time	——	15	23	ns	V_{DD} = -15V, V_{GS} = -10V
t_r	Rise Time	——	25	38		I_D = -1.0A
$t_{d(off)}$	Turn-Off Delay Time	——	227	341		R_G = 6.0Ω
t_f	Fall Time	——	107	161		R_D = 15Ω ②
C_{iss}	Input Capacitance	——	2204	——	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	——	341	——		V_{DS} = -25V
C_{rss}	Reverse Transfer Capacitance	——	220	——		f = 1.0MHz

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	——	——	-1.8	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	——	——	-28		
V_{SD}	Diode Forward Voltage	——	——	-1.2	V	T_J = 25°C, I_S = -1.8A, V_{GS} = 0V ②
t_{rr}	Reverse Recovery Time	——	35	53	ns	T_J = 25°C, I_F = -1.8A
Q_{rr}	Reverse Recovery Charge	——	32	48	µC	di/dt = -100A/µs ②

Notes:

① Repetitive rating; pulse width limited by max. junction temperature.

② Pulse width ≤ 400µs; duty cycle ≤ 2%.

③ When mounted on 1 inch square copper board, t < 10 sec.

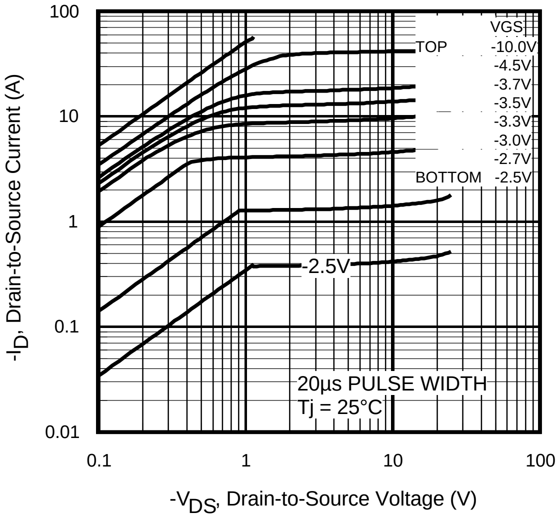


Fig 1. Typical Output Characteristics

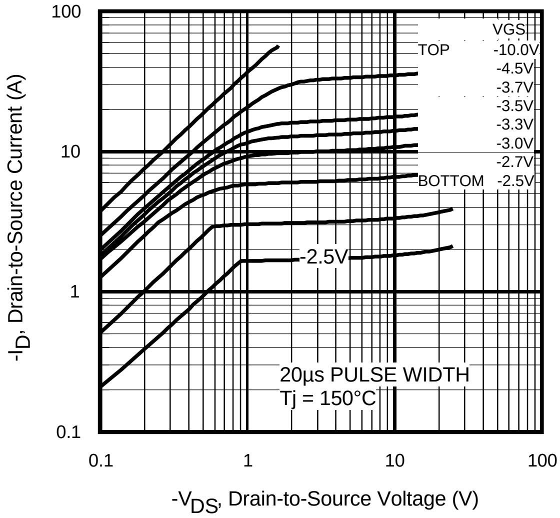


Fig 2. Typical Output Characteristics

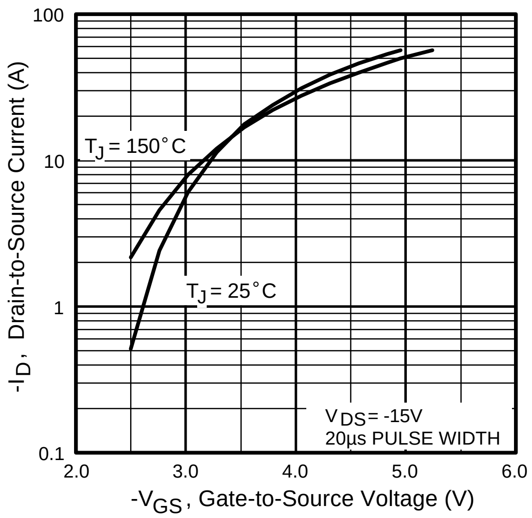


Fig 3. Typical Transfer Characteristics

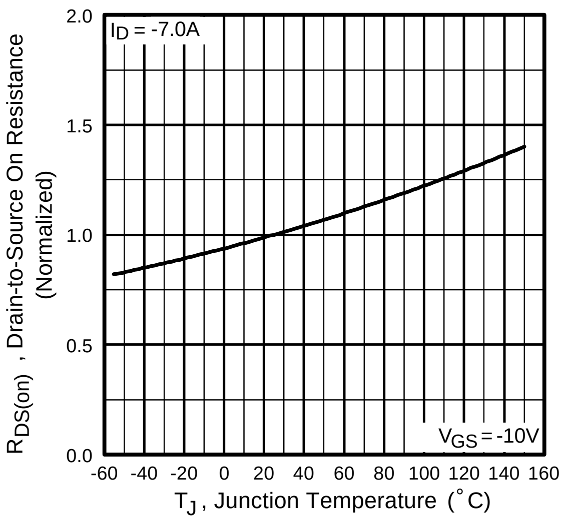


Fig 4. Normalized On-Resistance Vs. Temperature

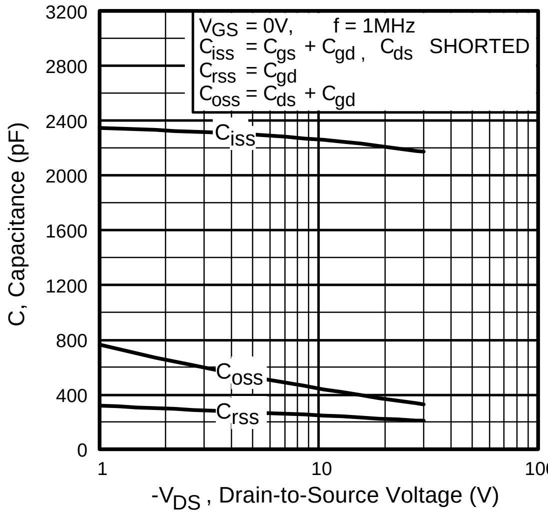


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

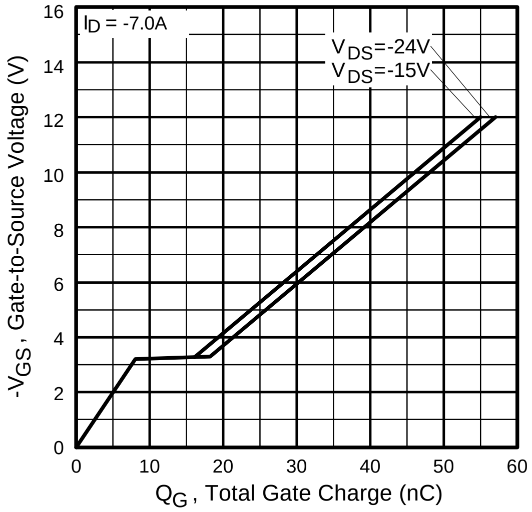


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

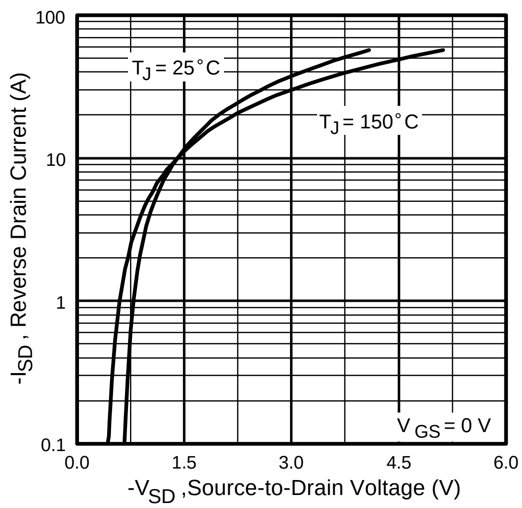


Fig 7. Typical Source-Drain Diode Forward Voltage

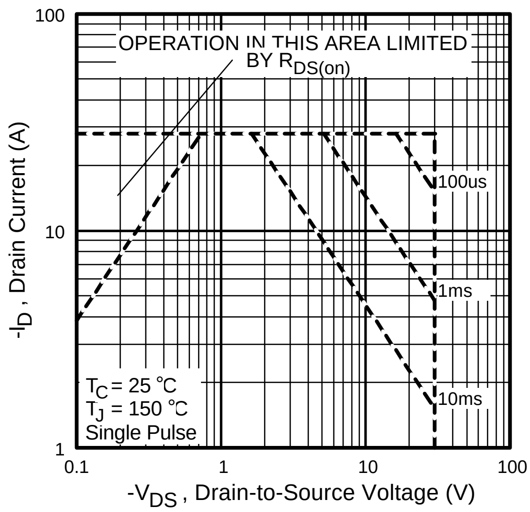


Fig 8. Maximum Safe Operating Area

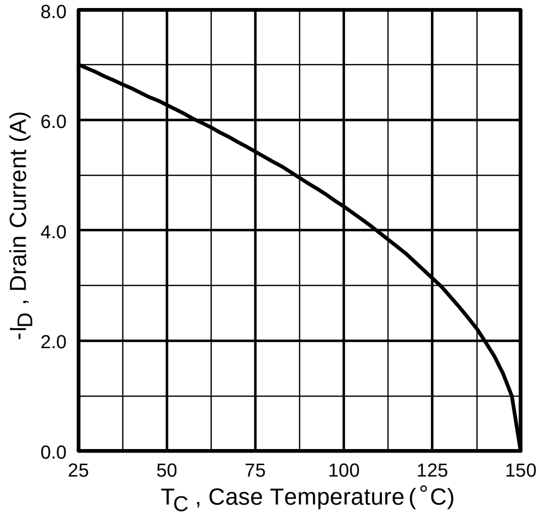


Fig 9. Maximum Drain Current Vs. Case Temperature

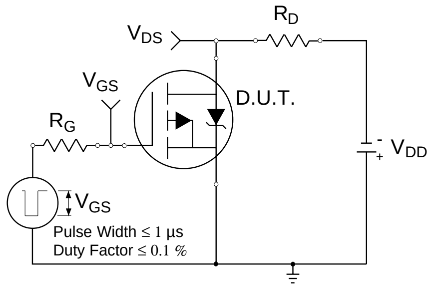


Fig 10a. Switching Time Test Circuit

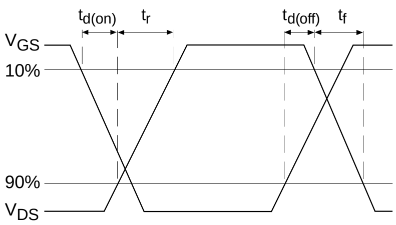


Fig 10b. Switching Time Waveforms

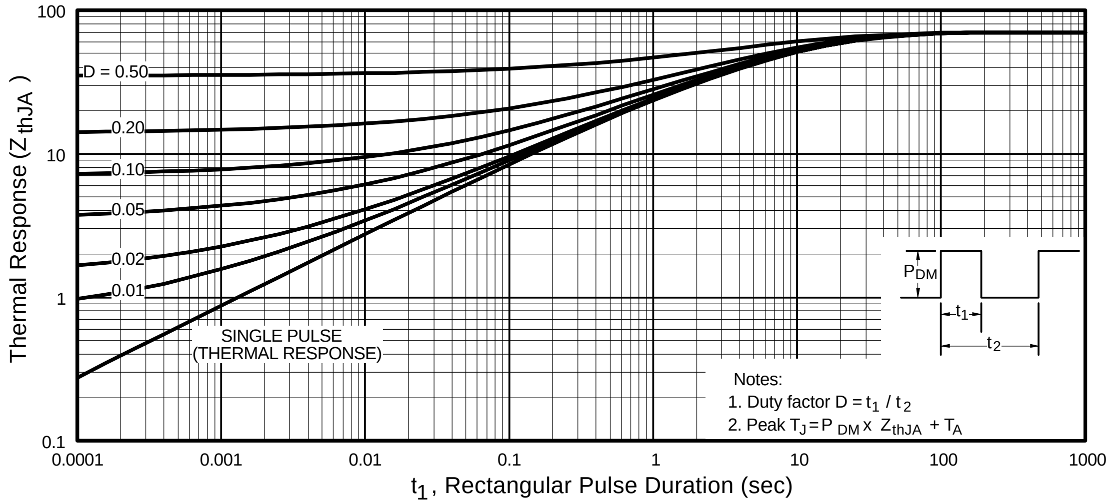


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

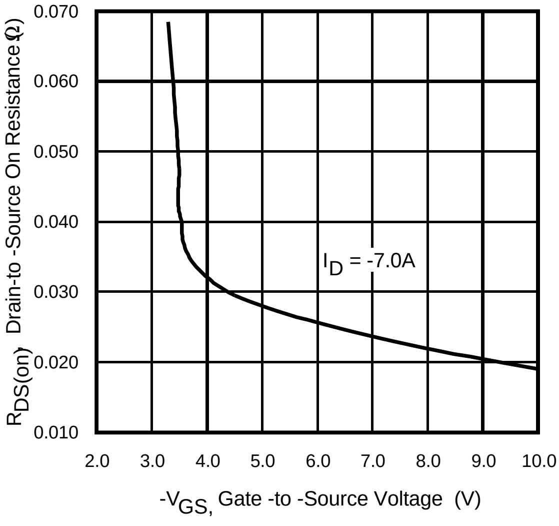


Fig 12. Typical On-Resistance Vs. Gate Voltage

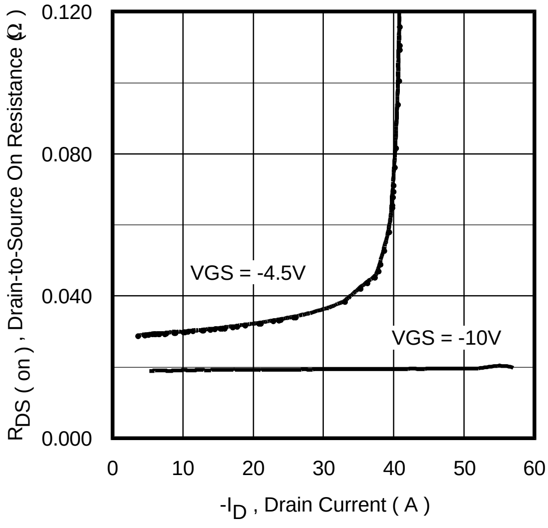


Fig 13. Typical On-Resistance Vs. Drain Current

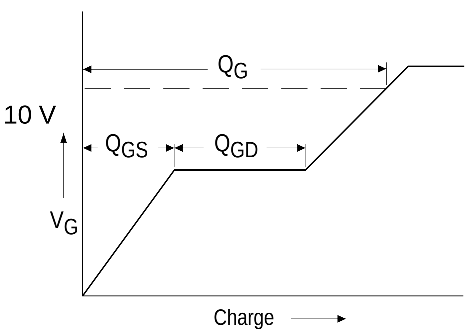


Fig 14a. Basic Gate Charge Waveform

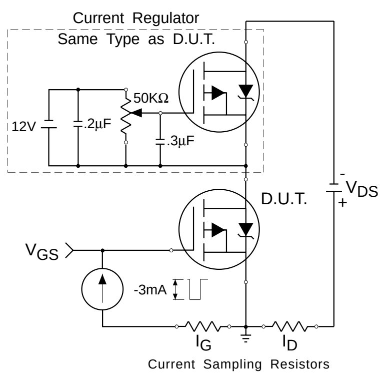


Fig 14b. Gate Charge Test Circuit

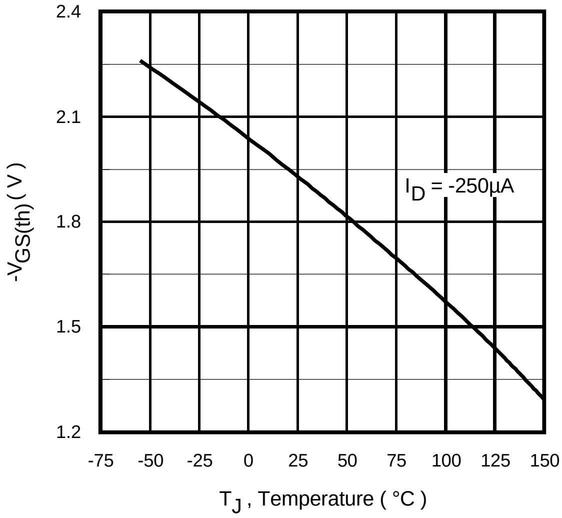


Fig 15. Typical Vgs(th) Vs. Junction Temperature

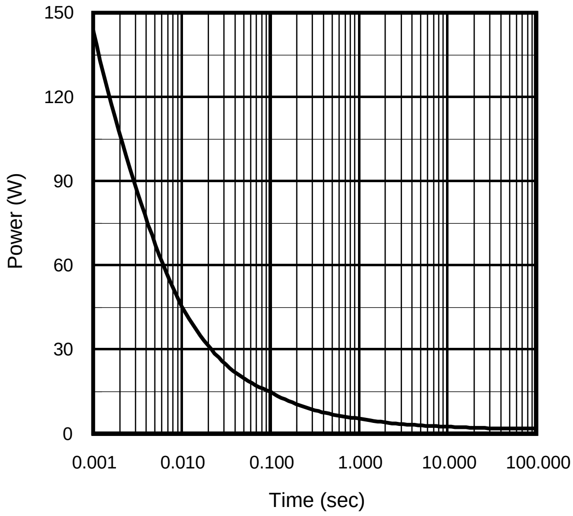


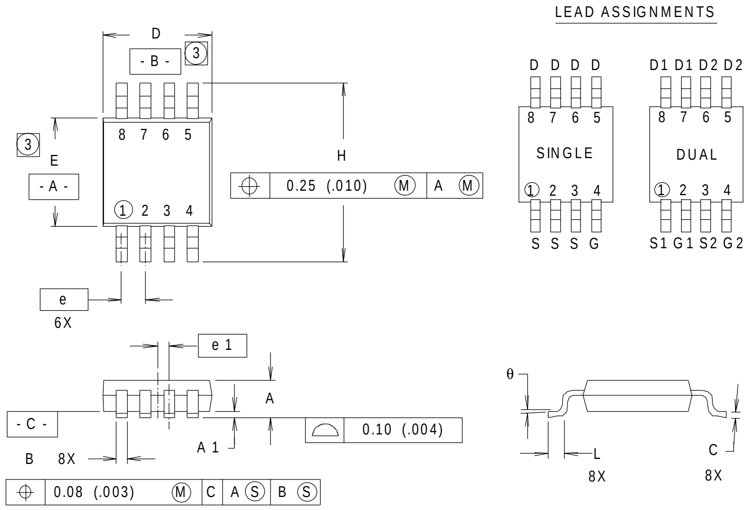
Fig 16. Typical Power Vs. Time

IRF7726

International IOR Rectifier

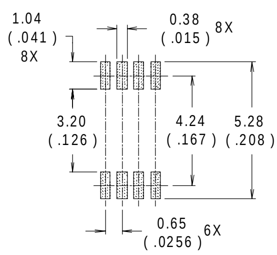
Package Outline

Micro-8 Outline
Dimensions are shown in millimeters (inches)



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.036	.044	0.91	1.11
A1	.004	.008	0.10	0.20
B	.010	.014	0.25	0.36
C	.005	.007	0.13	0.18
D	.116	.120	2.95	3.05
e	.0256 BASIC		0.65 BASIC	
e1	.0128 BASIC		0.33 BASIC	
E	.116	.120	2.95	3.05
H	.188	.198	4.78	5.03
L	.016	.026	0.41	0.66
θ	0°	6°	0°	6°

RECOMMENDED FOOTPRINT

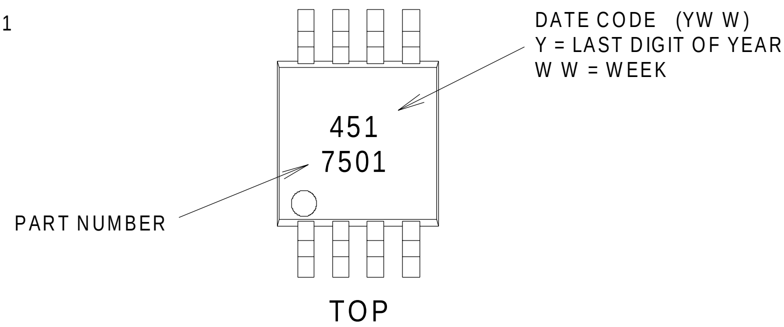


NOTES:
1 DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982.
2 CONTROLLING DIMENSION : INCH.
3 DIMENSIONS DO NOT INCLUDE MOLD FLASH.

Part Marking Information

Micro-8

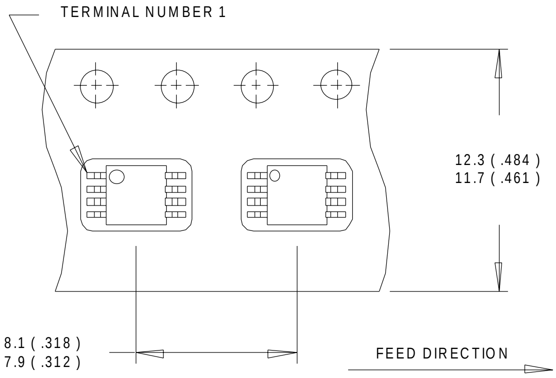
EXAMPLE : THIS IS AN IRF7501



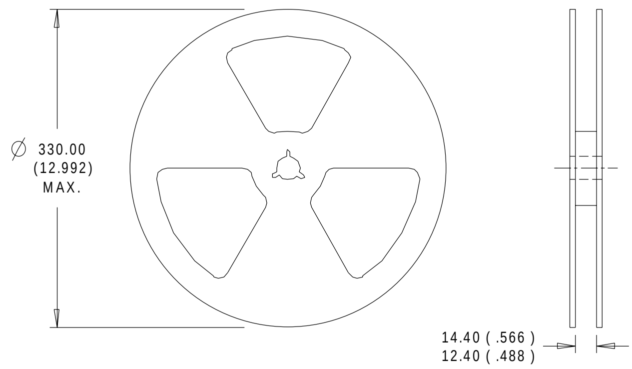
Tape & Reel Information

Micro-8

Dimensions are shown in millimeters (inches)



NOTES:
1. OUTLINE CONFORMS TO EIA-481 & EIA-541.
2. CONTROLLING DIMENSION : MILLIMETER.



NOTES :
1. CONTROLLING DIMENSION : MILLIMETER.
2. OUTLINE CONFORMS TO EIA-481 & EIA-541.

Data and specifications subject to change without notice.
This product has been designed and qualified for the commercial market.
Qualification Standards can be found on IR's Web site.

International IOR Rectifier

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